

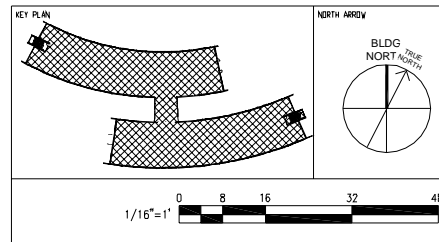
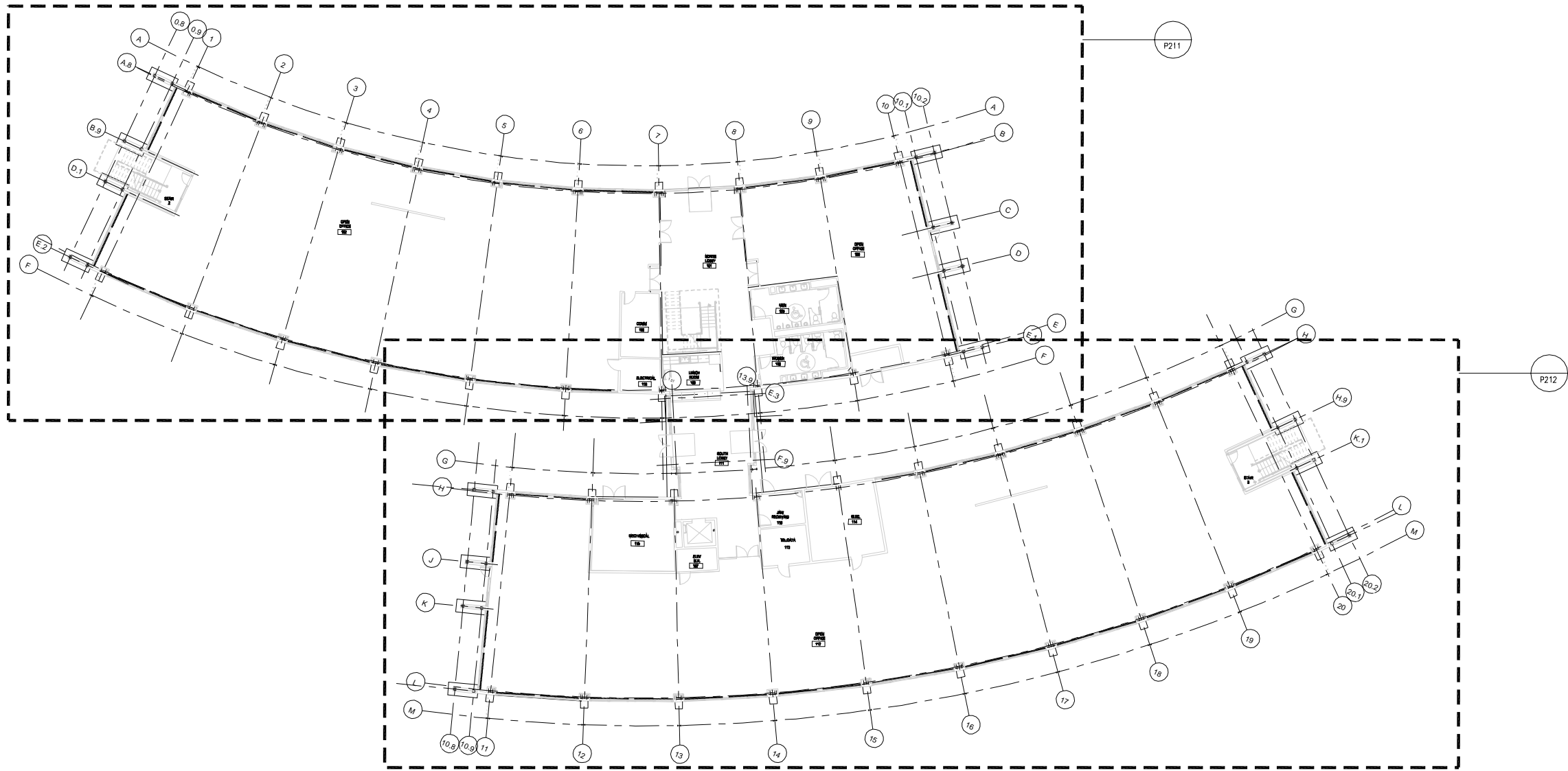
PLUMBING LEGEND		
SYMBOL	ABBREV.	DESCRIPTION
----	CW	COLD WATER
-----	H OR HW	HOT WATER
-----	HWR	HOT WATER RETURN
---W/S---	W/S	WASTE OR SEWER BELOW FLOOR
---W/S---	W/S	WASTE OR SEWER ABOVE FLOOR
-----	V	SANITARY VENT
-----FOS	FOS	FUEL OIL SUPPLY
-----FOR	FOR	FUEL OIL RETURN
---FOV---	FOV	FUEL OIL VENT
-----ICW	ICW	INDUSTRIAL COLD WATER
-----ID	ID	INDIRECT DRAIN
-----CD	CD	CONDENSATE DRAIN
-----TP	TP	TRAP PRIMER
-----G	G	FUEL GAS
---SD/OD---	SD/OD	STORM OR OVERFLOW DRAIN BELOW FLOOR
---SD/OD---	SD/OD	STORM OR OVERFLOW DRAIN ABOVE FLOOR
---CWV---	CWV	COMBINATION WASTE AND VENT
-----HV	HV	HOUSE VACUUM
-----VE	VE	VACUUM EXHAUST
-----SOV	SOV	SHUT OFF VALVE
-----SOC	SOC	SHUT OFF COCK
-----+>	HB	HOSE-BIBB
-----+>-----		PIPE-UP OR RISER
-----+>-----		PIPE-DOWN OR DROP
----- -----		UNION
----- -----	WCO	WALL CLEANOUT
-----⊙	FCO	FLOOR CLEANOUT
-----⊙	FD	FLOOR DRAIN
-----⊗	FS	FLOOR SINK
-----⊙	DIA.	DIAMETER
-----RPBFP	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
-----DCBFP	DCBFP	DOUBLE CHECK BACKFLOW PREVENTER
-----⊙		EQUIPMENT IDENTIFICATION
-----⊙		SANITARY DRAINAGE STACK
-----⊙		SANITARY VENT STACK
-----⊙		DOMESTIC WATER RISER
	ABV	ABOVE
	AP	ACCESS PANEL
	AD	AREA DRAIN
	BEL	BELOW
	BEH	BEHIND
	BFP	BACKFLOW PREVENTER
	CI	CAST IRON
	CLG	CEILING
	CO	CLEANOUT
	CONN	CONNECT OR CONNECTION
	CONC	CONCRETE
	CONT	CONTINUATION
	CFH	CUBIC FEET PER HOUR
	DR	DROP
	EQUIP	EQUIPMENT
	FA	FROM ABOVE
	FB	FROM BELOW
	FLEX	FLEXIBLE
	FU	FIXTURE UNIT
	FIN	FINISH
	FFE	FINISH FLOOR ELEVATION
	FLR	FLOOR
	FT	LINEAR FEET OR LINEAR FOOT
	GAL	GALLON
	GPF	GALLONS PER FLUSH
	GPM	GALLONS PER MINUTE
	GR	GRADE
	HDR	HEADER
	HZ	HERTZ
	HP	HORSE POWER
	ID	INSIDE DIAMETER
	IE	INVERT ELEVATION
	KW	KILOWATT
	L	LENGTH
	LBS	POUNDS
	LOC	LOCATION
	TYP	TYPICAL
	MIN	MINIMUM
	MAX	MAXIMUM
	MECH	MECHANICAL
	NTS	NOT TO SCALE
	NO	NUMBER
	OD	OUTSIDE DIAMETER
	PH	PHASE
	Sq	SQUARE
	T.D.H.	TOTAL DYNAMIC HEAD
	T.D.L.	TOTAL DEVELOPED LENGTH
	U.L.	UNDERWRITERS LABORATORY
	UON	UNLESS OTHERWISE NOTED
	VB	VACUUM BREAKER
	W/	WITH
	WT	WEIGHT
	N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION
	A.S.T.M	AMERICAN SOCIETY TESTING MATERIALS
	C.P.C.	CALIFORNIA PLUMBING CODE
	VB	VACUUM BREAKER
	VTR	VENT THRU ROOF

GENERAL NOTES	
1.	REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
2.	REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
3.	REFER TO ARCHITECTURAL INTERIOR ELEVATION DRAWINGS, WHERE THE ARCHITECT HAS DRAWN SUCH ELEVATIONS, FOR THE LOCATIONS OF ALL WALL MOUNTED DEVICES.
4.	COORDINATE ALL SLAB PENETRATIONS AND SLEEVES PRIOR TO EACH CONCRETE POUR.
5.	PROVIDE ACCESS DOORS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED PLUMBING EQUIPMENT, VALVES, CONTROLS AND OTHER DEVICES.
6.	INSTALL PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH. MAINTAIN A MINIMUM OF 10 INCHES ABOVE FINISHED CEILING TO PROVIDE CLEARANCE FOR LIGHTING FIXTURES.
7.	COORDINATE THE EXACT LOCATION OF FLOOR DRAINS WITH THE ARCHITECTURAL DRAWINGS AND MECHANICAL EQUIPMENT LOCATIONS PRIOR TO INSTALLATION OF DRAINS.
8.	COORDINATE WORK WITH ARCHITECTURAL FEATURES AND BETWEEN PIPING, EQUIPMENT, MECHANICAL WORK, ELECTRICAL WORK, AND BUILDING STRUCTURE TO AVOID INTERFERENCES.
9.	EXACT EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO PROJECT COMMENCEMENT.
10.	SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES, DRAIN, AND EQUIPMENT.
11.	COORDINATE ALL LOCATIONS, SIZES AND ELEVATIONS OF ALL SLEEVES THROUGH BEAMS, SLAB AND FOOTINGS WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS.
12.	ALL HORIZONTAL WASTE LINES SHALL BE RUN AT A MINIMUM SLOPE OF 1/4" PER FOOT UNLESS APPROVED BY THE BUILDING OFFICIAL.
13.	ALL HORIZONTAL STORM DRAINS AND OVERFLOW DRAIN LINES SHALL BE RUN AT A SLOPE OF 1/8" PER FOOT UNLESS OTHERWISE NOTED ON PLAN.
14.	COORDINATE AND VERIFY EXACT LOCATION, SIZE, POINTS OF CONNECTION, AND INVERT ELEVATIONS OF UTILITY SERVICE PIPING BEFORE TRENCHING OR INSTALLATION.
15.	ALL LOCATION AND ELEVATION OF ALL PLUMBING PIPING SHALL BE VERIFIED AND COORDINATED WITH ALL OTHER TRADES, STRUCTURAL CONDITIONS AND BUILDING CONSTRUCTION PRIOR TO START OF INSTALLATION.
16.	ALL VALVES AND COCKS SHALL BE LOCATED TO BE READILY ACCESSIBLE. WHERE VALVES ARE INSTALLED WITHIN OR BEHIND WALLS, PARTITIONS OR CEILING, AN ACCESS PANEL SHALL BE INSTALLED. SUBMIT SHOP DRAWINGS TO ARCHITECT LOCATING ALL ACCESS PANELS PRIOR TO INSTALLATION OF PIPING.
17.	ALL OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED SO AS TO PERMIT EASY CONNECTION-COORDINATE WITH DUCTWORK, STRUCTURAL CONDITIONS AND ARCHITECTURAL LAYOUT.
18.	ALL PLUGGED OR CAPPED WASTE OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED AS LOW AS POSSIBLE IN CEILING SPACES.
19.	ALL PLUGGED OR CAPPED VENT OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED AS LOW AS POSSIBLE IN CEILING SPACES.
20.	CLEANOUTS SHALL INSTALLED PER SECTION 707.0, 706.0, AND 709.0 OF THE UPC.
21.	ROOF DRAINS, OVERFLOW DRAINS, AND RAINWATER PIPING WITHIN THE INTERIOR OF THE BUILDING SHALL BE TESTED IN ACCORDANCE WITH THE PROVISION OF THE PLUMBING CODE FOR TESTING DRAIN, WASTE, AND VENT SYSTEMS.
22.	EACH VENT SHALL TERMINATE NOT LESS THAN TEN FEET FROM, OR AT LEAST THREE FEET ABOVE ANY OPERABLE WINDOW, DOOR OPENING, AIR INTAKE, OR VENT SHAFT, NOR LESS THAN THREE FEET IN EVERY DIRECTION FROM ANY PROPERTY LINE.
23.	NO GAS PIPING SHALL BE INSTALLED IN OR ON THE GROUND UNDER ANY BUILDING OR STRUCTURE AND ALL EXPOSED GAS PIPING SHALL BE KEPT AT LEAST 6" ABOVE GRADE.
24.	EACH VENT SHALL RISE VERTICALLY TO A POINT NOT LESS THAN SIX (6) INCHES IN HEIGHT ABOVE THE FLOOD LEVEL RIM ON THE FIXTURE IT SERVES BEFORE CONNECTING TO ANY OTHER VENT.
25.	OVERFLOW ROOF DRAINS HAVING THE SAME SIZE AS THE ROOF DRAINS SHALL BE INSTALLED WITH THE INLET FLOW LINE LOCATED TWO (2) INCHES ABOVE THE LOW POINT OF THE ROOF.
26.	MANUFACTURED ROOF DRAINS AND OVERFLOW ROOF DRAINS (FIXTURES) SHALL BE IAPMO LISTED.

ABBREVIATIONS					
ABV	ABOVE	HP	HORSEPOWER	T	TANK
AC	AIR CONDITIONING	HT	HEIGHT	TDH	TOTAL DYNAMIC HEAD
AFF	ABOVE FINISHED FLOOR	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	TEL	TELEPHONE
AP	ACCESS PANEL	HW	DOMESTIC HOT WATER	TEMP	TEMPERATURE
BEL	BELOW	HWCP	HOT WATER CIRCULATING PUMP	TOC	TOP OF CONCRETE
BFP	BACKFLOW PREVENTER	HWR	DOMESTIC HOT WATER RETURN	TMV	THERMOSTATIC MIXING VALVE
BOP	BOTTOM OF PIPE	HZ	HERTZ	TP	TRAP PRIMER
BLDG	BUILDING	IA/PA	INSTRUMENT AIR/PLANT AIR	TP	TRAP PRIMER
		IE	INVERT ELEVATION	T&PRV	TEMPERATURE & PRESSURE RELIEF VALVE
°C	DEGREES CENTIGRADE	IRU	IN ROOM UNIT	TW	TEMPERED WATER
CD	CONDENSATE DRAIN	ICW	INDUSTRIAL COLD WATER	TYP	TYPICAL
CFH	CUBIC FEET PER HOUR	IN	INCH		
CLG	CEILING	kg	KILOGRAM	U	URINAL
CO	CLEANOUT	KS	KITCHEN SINK	UNO	UNLESS NOTED OTHERWISE
CONC	CONCRETE	kPa	KILOPASCAL		
CONN	CONNECTION	kg/s	KILOGRAM PER SECOND	UG	UNDERGROUND
CONT	CONTINUATION	kW	KILOWATT	V	VENT/VOLTS
COTG	CLEANOUT TO GRADE	L	LAVATORY/LENGTH/LITER	VB	VENT BELOW FLOOR
COVB	CLEANOUT IN YARDBOX	LBS	POUNDS	VEL	VELOCITY
CP	CIRCULATING PUMP	L/s	LITER PER SECOND	VTR	VENT THRU ROOF
CU	CUBIC	m	METER	WT	WEIGHT
CW	DOMESTIC COLD WATER	MAX	MAXIMUM	W/	WITH
CWV	COMBINATION WASTE AND VENT	MIN	MINIMUM	W	WASTE/WATT
ø	DIAMETER/PHASE	MNPT	MALE NATIONAL PIPE THREAD	WC	WATER CLOSET
D	DRAIN	MS	MOP SINK	WCO	WALL CLEAN OUT
DET	DETAIL	NO	NORMALLY OPEN/NUMBER	WH	WALL HYDRANT
DIA	DIAMETER	NC	NORMALLY CLOSE	WHA	WATER HAMMER ARRESTER
DN	DOWN	NTS	NOT TO SCALE	WS	WATER SOFTENER
DWG	DRAWING	OD	OVERFLOW DRAIN		
DWH	DOMESTIC WATER HEATER	OC	ON CENTER		
EA	EXPANSION ABSORBER	OPER	OPERATING		
EL	ELEVATION	PDI	PLUMBING DRAINAGE INSTITUTE		
ELECT	ELECTRICAL	POC/POD	POINT OF CONNECTION/POINT OF DISCONNECTION		
ENT	ENTERING	PRESS	PRESSURE		
EQUIP	EQUIPMENT				
EWC	ELECTRIC WATER COOLER	PRV	PRESSURE REDUCING VALVE		
EXIST	EXISTING	PSI	POUNDS PER SQUARE INCH		
F	FILTER	PSIG	POUNDS PER SQUARE INCH GAUGE		
°F	DEGREES FAHRENHEIT	PTR	PRESSURE TEMPERATURE RELIEF VALVE		
FCO	FLOOR CLEANOUT	PH	PHASE		
FD	FLOOR DRAIN/FOUNDATION DRAIN	RPM	REVOLUTIONS PER MINUTE		
FF	FINISHED FLOOR	RD	ROOF DRAIN		
FS	FLOOR SINK	REF	REFERENCE		
FFE	FINISHED FLOOR ELEVATION	RHB	RECESSED HOSE BIBB		
FT	FEET	RM	ROOM		
G	NATURAL GAS	RR	ROOF RECEPTOR		
GA	GAUGE	RV	RELIEF VALVE/RELIEF VENT		
GAL	GALLON	S	SOIL/SANITARY SEWER		
GD	GUTTER DRAIN	SCFM	STANDARD CUBIC FEET PER MINUTE		
GEN	GENERAL	SCW	SOFT COLD WATER		
GI	GREASE INTERCEPTOR	SD	STORM DRAIN		
GR	GRAINS	SHT	SHEET		
GPF	GALLON PER FLUSH	SOV	SHUT-OFF VALVE		
GPH	GALLON PER HOUR	SPEC	SPECIFICATION		
GPM	GALLON PER MINUTE	SQ	SQUARE		
GLV	GLOBE VALVE	SS	SERVICE SINK		
GV	GATE VALVE	ST	STORAGE TANK		
GWH	GAS WATER HEATER	SV	SOLENOID VALVE		
HB	HOSE BIBB				
HDR	HEADER				

PROJECT STATUS					
PRELIMINARY - NOT FOR CONSTRUCTION					
ISSUE					
1	10/20/2008	30% PRICING			
2	11/07/2008	30% DESIGN REVISION			
3	12/12/2008	60% INTERNAL QA/QC & COST ESTIMATE			
4	12/19/2008	60% PRE-FINAL, NASA REVIEW			
5	01/19/2009	60% FINAL ISSUE TO NASA			
6	02/17/2009	90% QA/QC & COST ESTIMATE			
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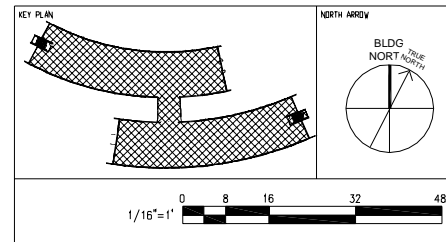
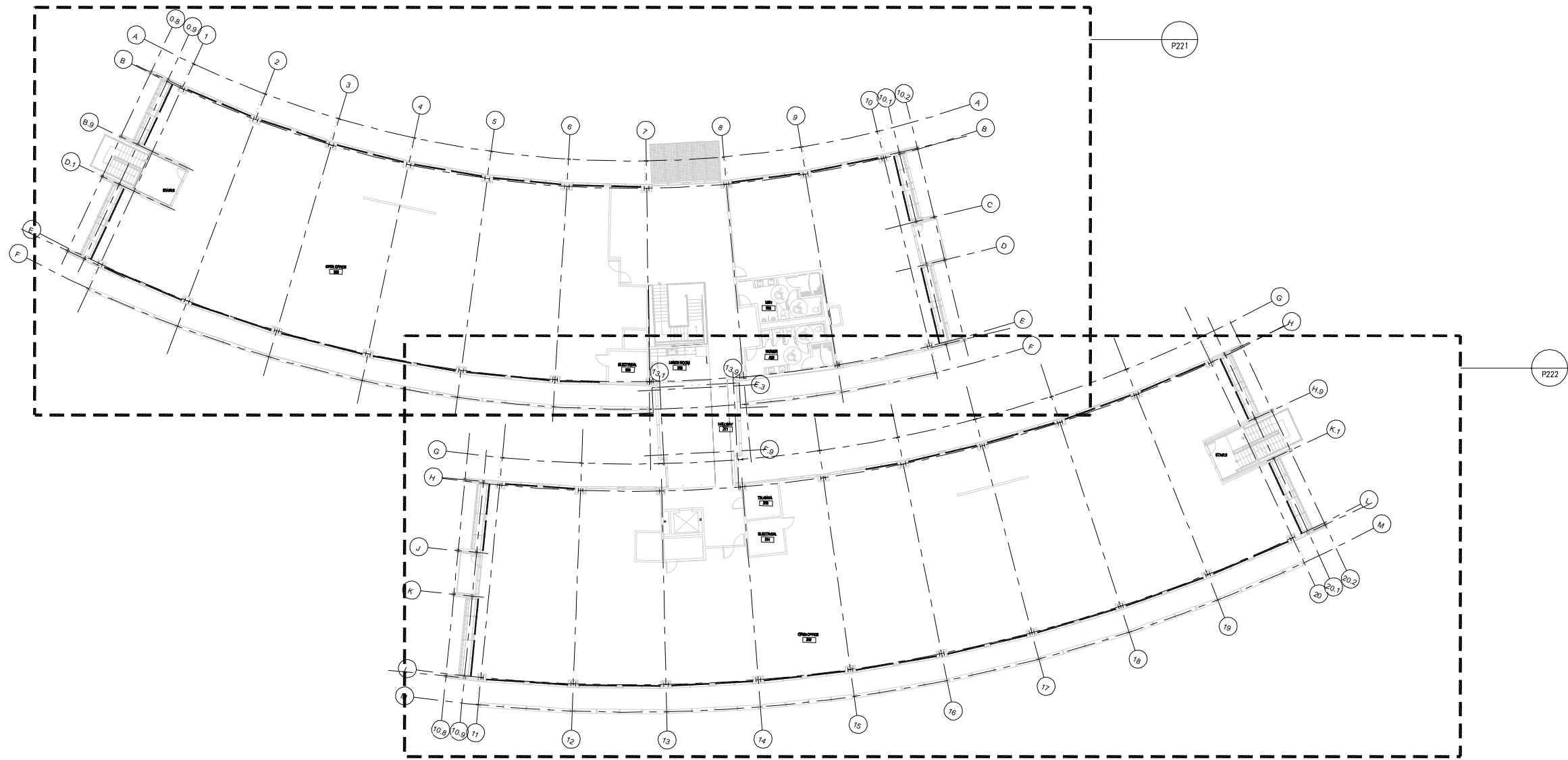




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5	01/19/2009	60% FINAL ISSUE TO NASA
6	02/17/2009	90% QA/QC & COST ESTIMATE
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DESIGNED	V. DANG	
CHECKED	A. REED	
PREPARED		
REQUESTOR		
REDA		
SAFETY		
SUPERVISOR	S. PAINTER	
SIZE	D	25307
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 **Ames Research Center**  
Moffet Field, California

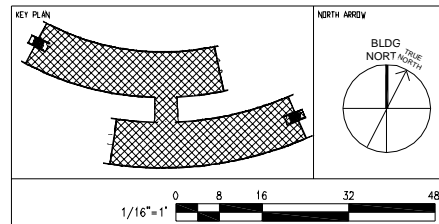
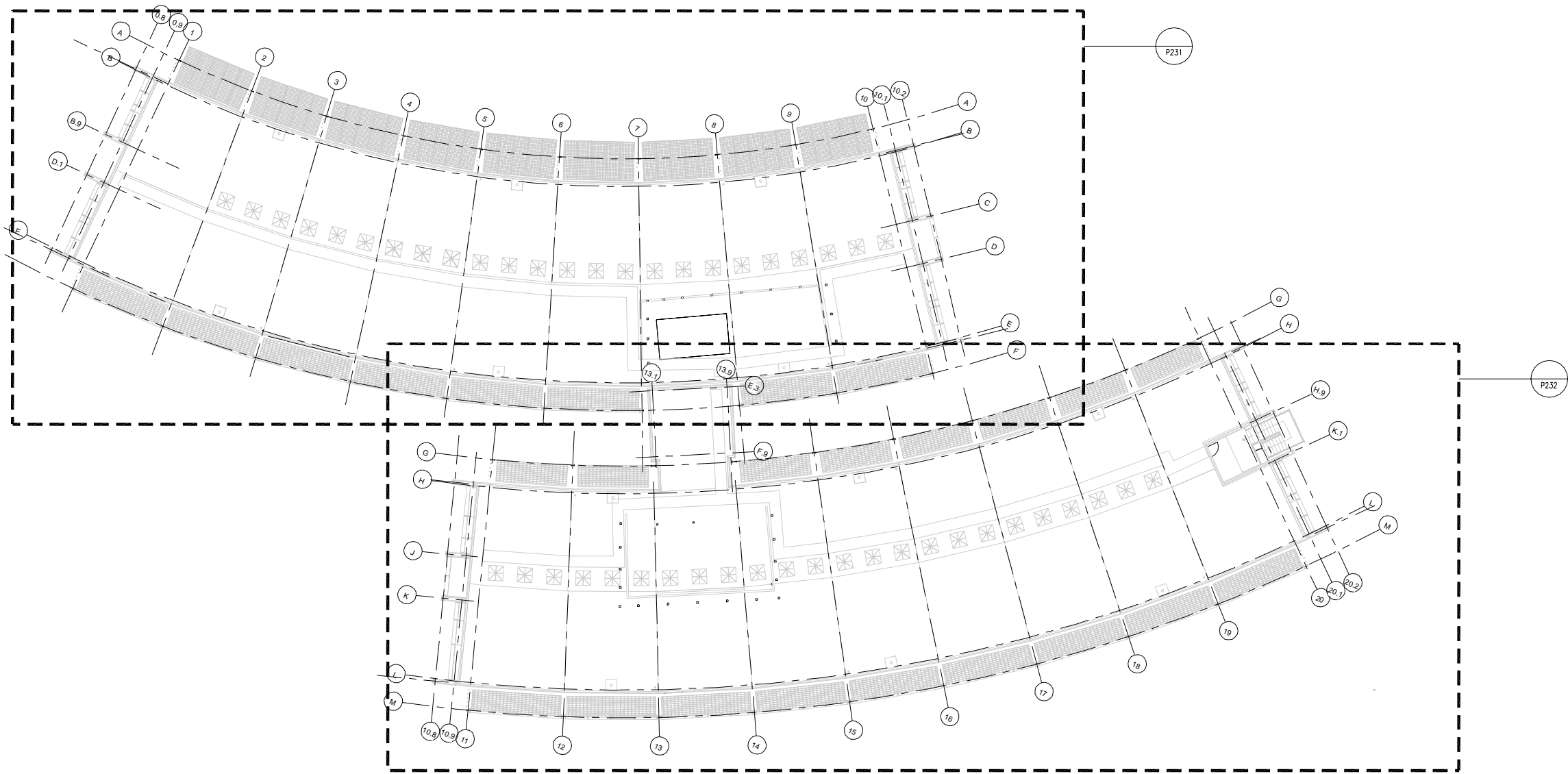
N232 COLLABORATIVE SUPPORT FACILITY  
**PLUMBING**  
**OVERALL FIRST FLOOR PLAN**

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Xrefs: \*AFR02 \*BDR-SHORT




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5	01/19/2009	60% FINAL ISSUE TO NASA			
6	02/17/2009	90% QA/QC & COST ESTIMATE			
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DRAWN	L. DICKENS	DATE			
DESIGNED	V. DANG	DATE			
CHECKED	A. REED	DATE			
PROJ. MGR		DATE			
REQUESTOR		DATE			
PLGA		DATE			
SAFETY		DATE			
SUPERVISOR	S. PAINTER	DATE			
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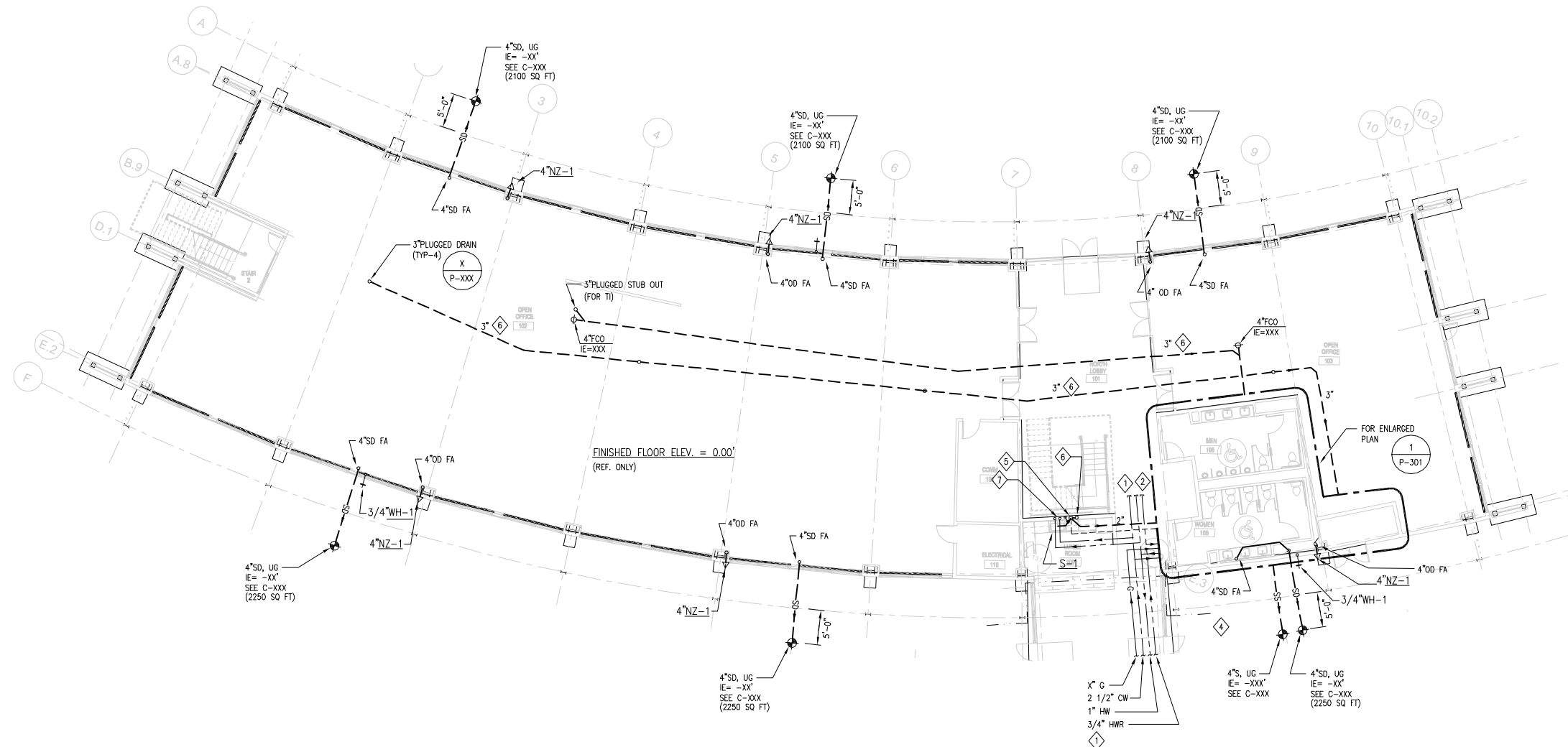



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DESIGNED	DATE	
V. DANG		
CHECKED	DATE	
A. REED		
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REQUESTOR	DATE	
REDA	DATE	
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S. PAINTER		
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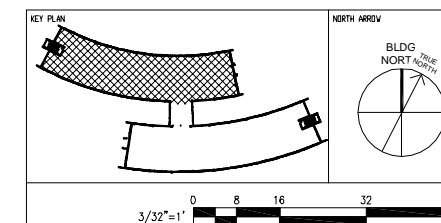
 **Ames Research Center**  
Moffet Field, California  
N232 COLLABORATIVE SUPPORT FACILITY  
PLUMBING  
OVERALL ROOF PLAN

1. FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.
2. FOR EQUIPMENT SCHEDULE SEE P-601.
3. HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.

- 1 PIPING RUN ABOVE CEILING.
- 2 CAPPED ABOVE CEILING (FOR FUTURE TI)
- 3 NOT USED
- 4 TERMINATE OVERFLOW DRAIN AT +6" AFF, DAYLIGHT TO EXTERIOR WALL WITH NOZZLE
- 5 1 1/2" PUMP DISCHARGED WITH SOV AND THREADED CAP
- 6 PIPING RUN BELOW CONCRETE SLAB
- 7 CONNECT 1/2" HOT AND COLD WATER LINE TO THE SINK

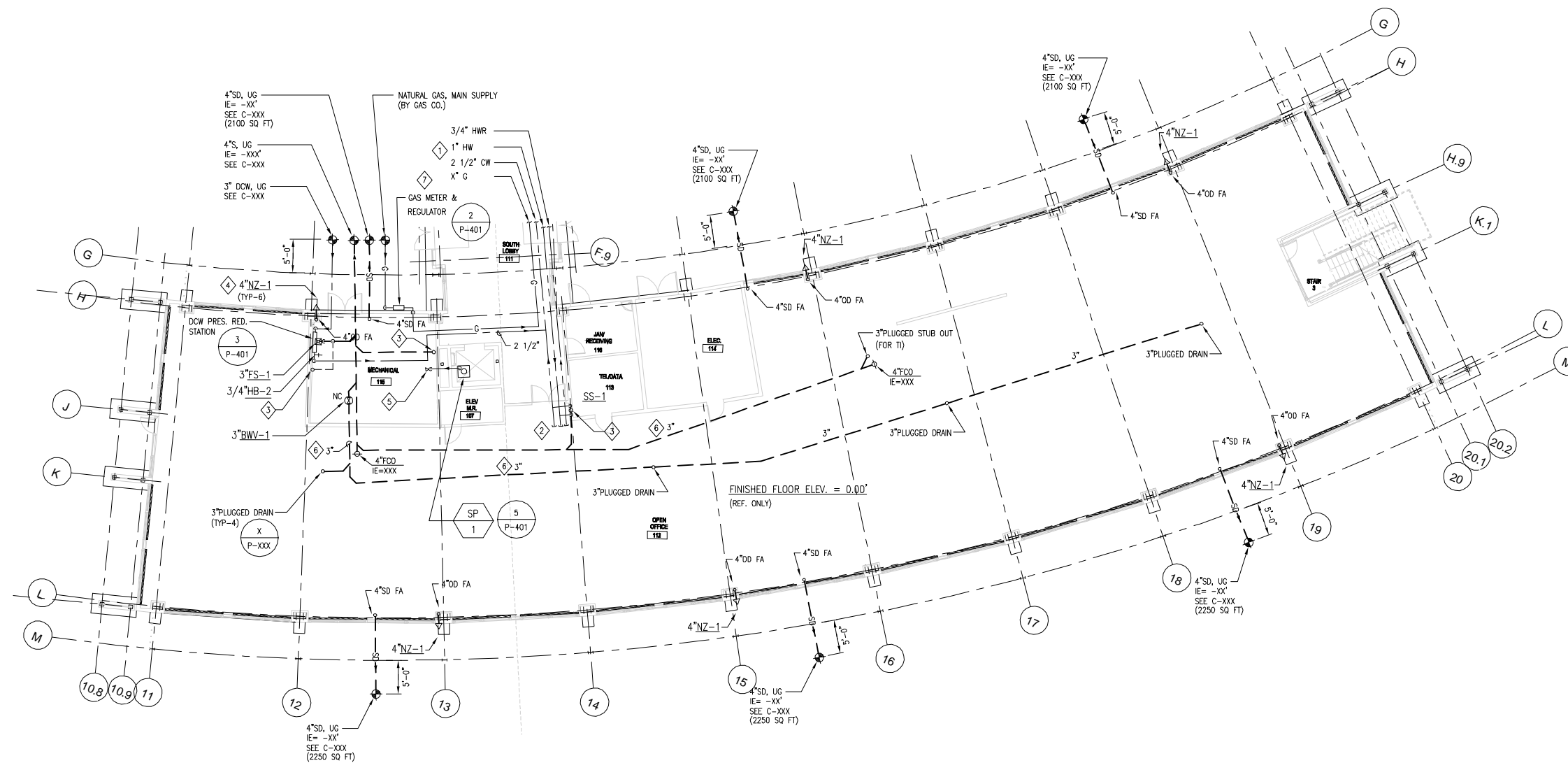


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5	01/19/2009	60% FINAL ISSUE TO NASA					
6	02/17/2009	90% QA/QC & COST ESTIMATE					
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DRAWN	L.DICKENS	DATE	<div></div> <div><b>Ames Research Center</b> Moffett Field, California</div> <div>N232 COLLABORATIVE SUPPORT FACILITY <b>PLUMBING</b> <b>PARTIAL FIRST FLOOR PLAN</b> <b>NORTH WING</b></div>				
DESIGNED	V. DANG	DATE					
CHECKED	A. REED	DATE					
PROJECT		DATE					
REQUESTOR		DATE					
WAGA		DATE					
SAFETY		DATE					
SUPERVISOR	S. PAINTER	DATE	SIZE D	ONE CODE 25307	A232-0800-	P211	REV 6
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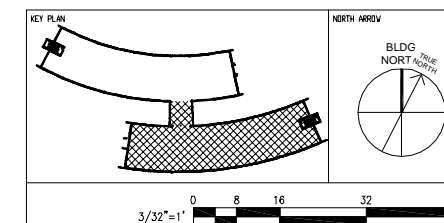



1. FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.
2. FOR EQUIPMENT SCHEDULE SEE P-601.
3. HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.

- 1 PIPING RUN ABOVE CEILING.
- 2 CAPPED ABOVE CEILING (FOR FUTURE TI)
- 3 2" W DN, 1 1/2" V UP TO ABOVE CEILING, 1/2" CW & HW DROP IN WALL
- 4 TERMINATE OVERFLOW DRAIN AT +6" AFF, DAYLIGHT TO EXTERIOR WALL WITH NOZZLE
- 5 1 1/2" PUMP DISCHARGED WITH SOV AND THREADED CAP
- 6 PIPING RUN BELOW CONCRETE SLAB
- 7 FINAL LOCATION OF GAS METER AND REGULATOR TO BE COORDINATED WITH ARCHITECT



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DATE: Feb 15, 2009 - 4:00:49 pm Images:  
Xrefs: "xAFP01" "XBDR-SHORT" "xFP01"



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PLUMBING NOTES:


1. FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.  
2. FOR EQUIPMENT SCHEDULE SEE P-601.  
3. HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.

KEY NOTES:

- 1 PIPING RUN ABOVE CEILING.  
2 2"W DN, 1 1/2"V UP TO ABOVE CEILING WITH WALL CLEANOUT  
3 1/2" CW & HW FROM BELOW



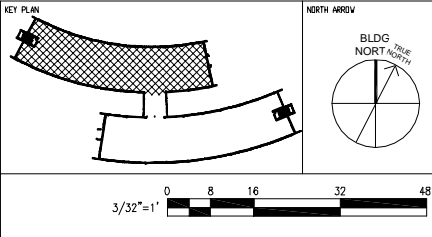
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DESIGNED	V. DANG	
CHECKED	A. REED	
PROJ. MGR		
REQUESTOR		
NASA		
SAFETY		
SUPERVISOR	S. PAINTER	

**Ames Research Center**  
Moffet Field, California

N232 COLLABORATIVE SUPPORT FACILITY  
**PLUMBING**  
**PARTIAL SECOND FLOOR PLAN**  
**NORTH WING**

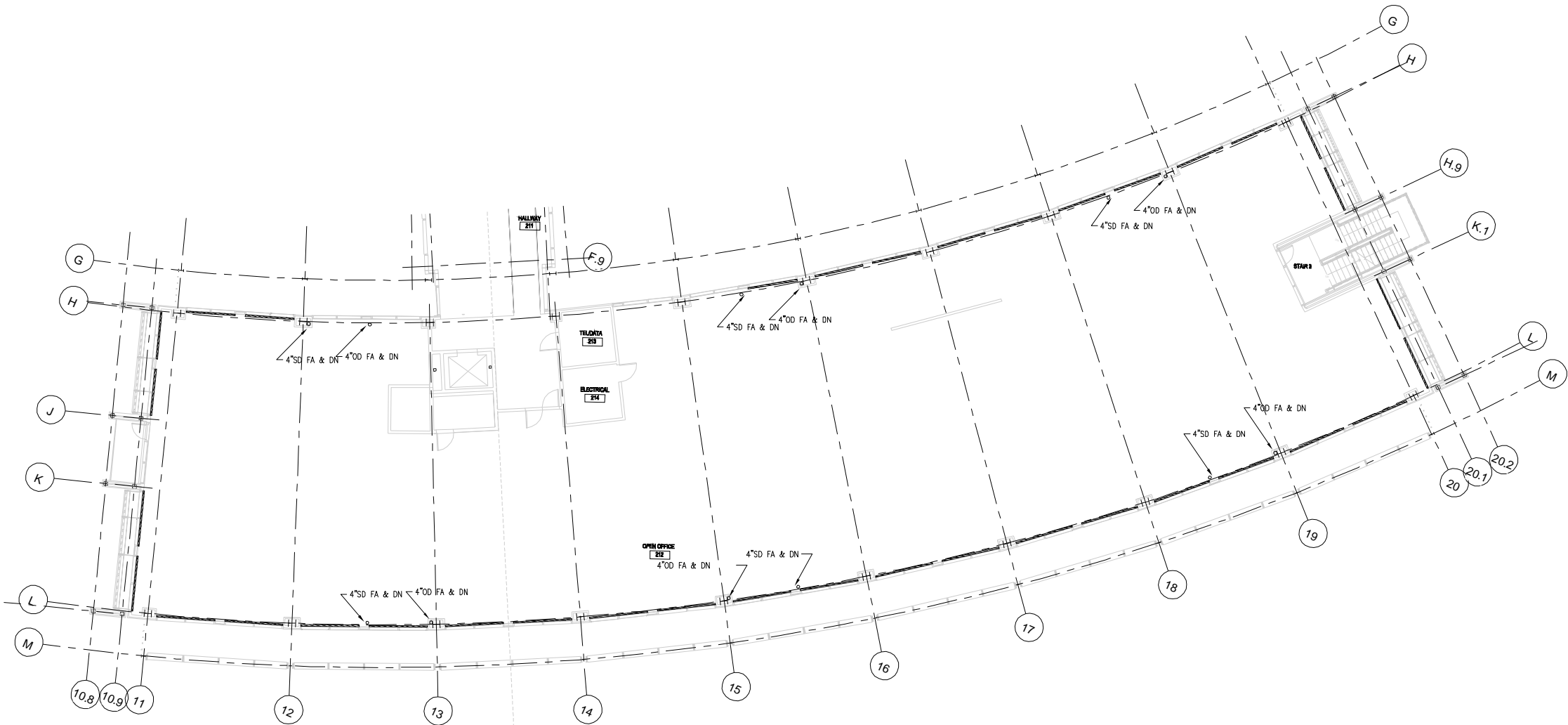
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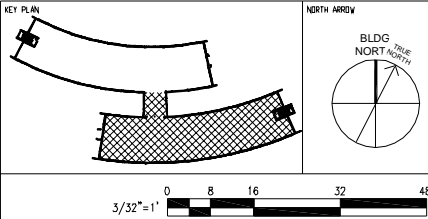


PLUMBING NOTES:

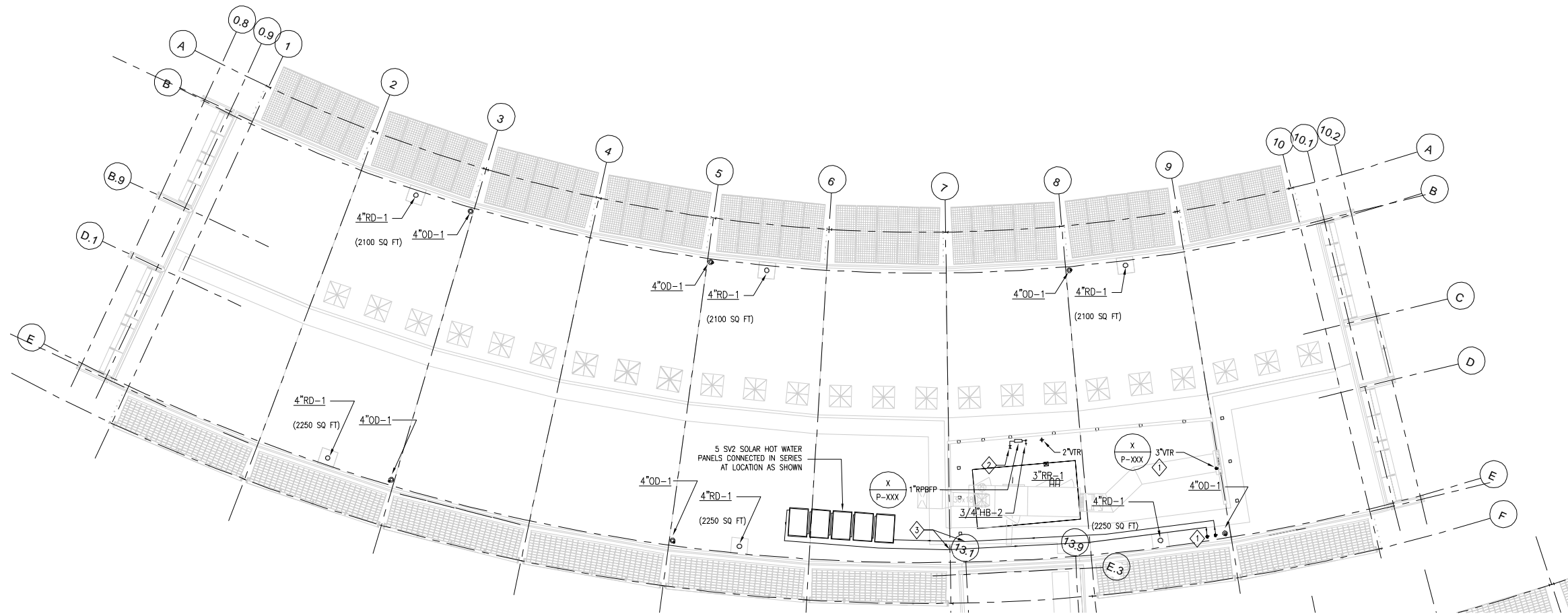
1. FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.  
2. FOR EQUIPMENT SCHEDULE SEE P-601.  
3. HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.



PROJECT STATUS		
PRELIMINARY - NOT FOR CONSTRUCTION		
ISSUE	DATE	DESCRIPTION
1	10/20/2008	30% PRICING
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3	12/12/2008	60% INTERNAL QA/QC & COST ESTIMATE
4	12/19/2008	60% PRE-FINAL, NASA REVIEW
5	01/19/2009	60% FINAL ISSUE TO NASA
6	02/17/2009	90% QA/QC & COST ESTIMATE
NAME	DATE	DESCRIPTION
DRAWN	L. DICKENS	
DESIGNED	V. DANG	
CHECKED	A. REED	
PREPARED		
REQUESTOR		
REDA		
SAFETY		
SUPERVISOR	S. PAINTER	
<div><div></div><div><b>Ames Research Center</b> Moffett Field, California</div></div> <div>N232 COLLABORATIVE SUPPORT FACILITY <b>PLUMBING</b> <b>PARTIAL SECOND FLOOR PLAN</b> <b>SOUTH WING</b></div>		
SIZE	D	REV 6
DATE CODE	25307	
SCALE	3/32" = 1'-0"	
INDEX		
SHEET		OF




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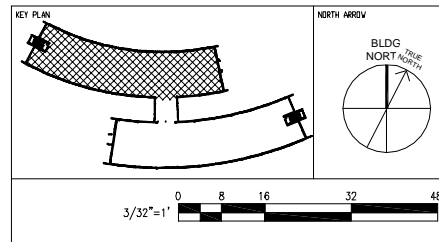



### PLUMBING NOTES:

1. FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.
2. FOR EQUIPMENT SCHEDULE SEE P-601.
3. HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.

### KEY NOTES:

1. FOR PIPE PENETRATION THRU ROOF SEE 
2. 1" ICW MAKE-UP TO MECHANICAL EQUIPMENT, FOR CONT SEE MECH DWGS
3. 1 1/4" COPPER PIPE WITH 1/2" THICK WEATHPROOF INSULATION CLAMPED ON RUBBER PAD IN 3' INTERVAL AND 1 1/2" SPACE BETWEEN ROOF TOP AND THE BOTTOM OF PIPE INSULATION.

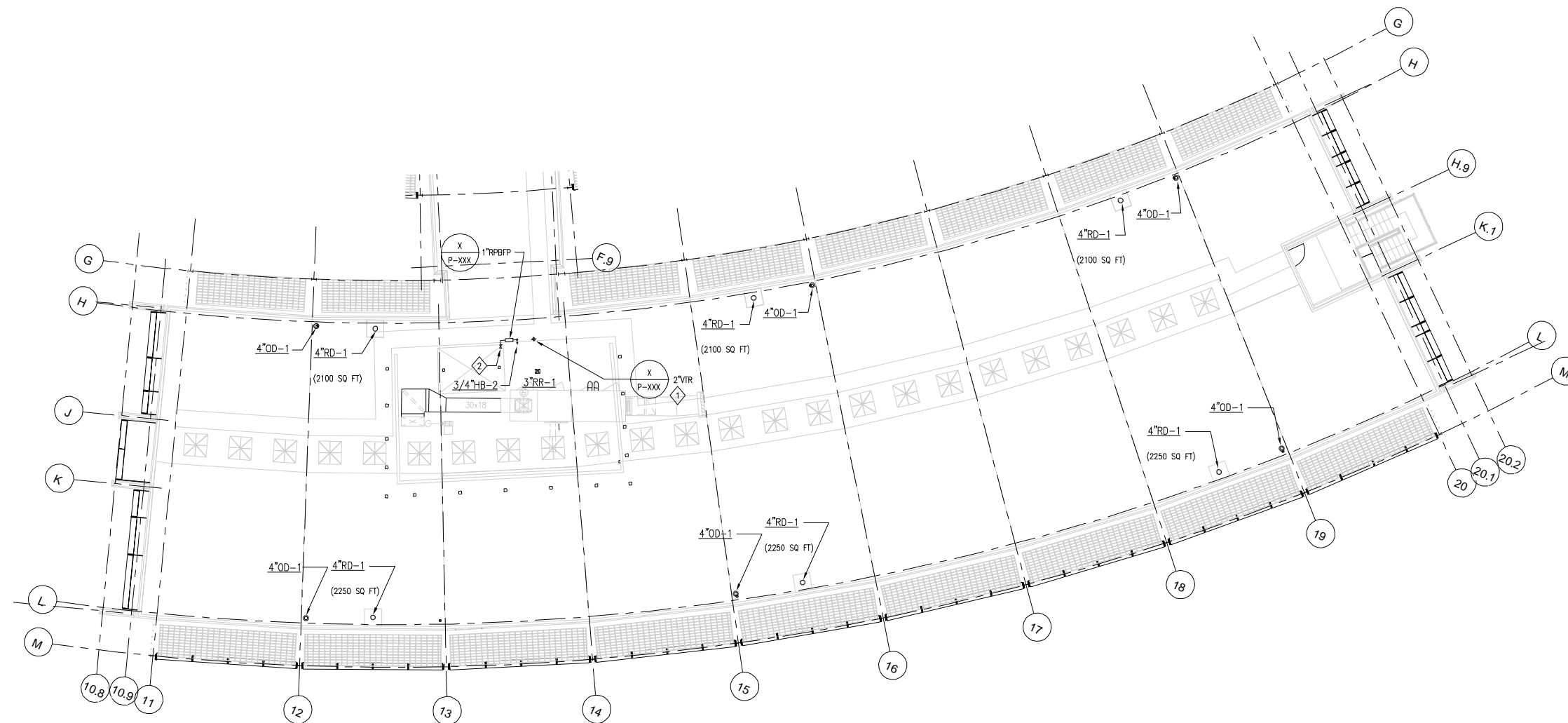



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DRAWN	L. DICKENS	
DESIGNED	V. DANG	
CHECKED	A. REED	
PROJECT MANAGER		
REQUESTOR		
REVIEWER		
SAFETY		
SUPERVISOR	S. PAINTER	
 <b>Ames Research Center</b> Moffett Field, California		
N232 COLLABORATIVE SUPPORT FACILITY PLUMBING PARTIAL ROOF PLAN - NORTH WING		
SIZE	DATE CODE	REV
D	25307	A232-0800- P231 6
SCALE	3/32" = 1'-0"	SHEET OF

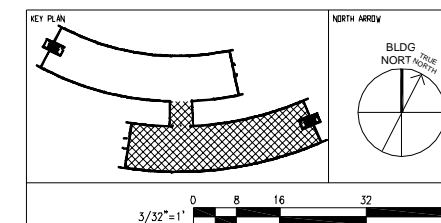
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1 FOR PIPE PENETRATION THRU ROOF SEE 

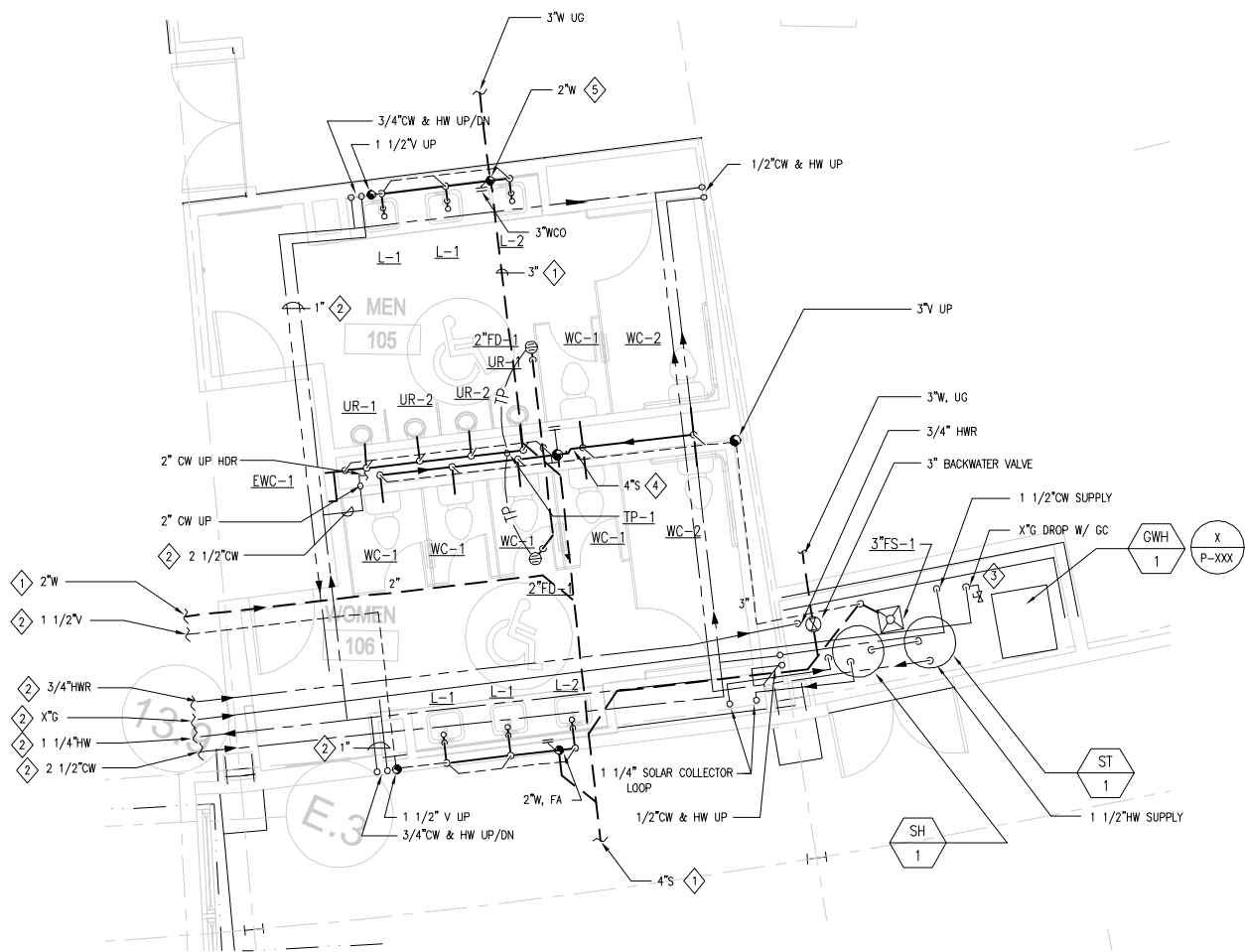
2 1" ICW MAKE-UP TO MECHANICAL EQUIPMENT,  
FOR CONT SEE MECH DWGS



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WORK	DATE	DESCRIPTION						
DRAWN	L.DICKENS	DATE	<div><div>Ames Research Center Moffett Field, California</div><div>N232 COLLABORATIVE SUPPORT FACILITY PLUMBING PARTIAL ROOF PLAN —SOUTH WING</div></div>					
DESIGNED	V. DANG	DATE						
CHECKED	A. REED	DATE						
PROJECT		DATE						
REQUESTOR		DATE						
INQA		DATE						
SAFETY		DATE						
SUPERVISOR	S. PAINTER	DATE	SIZE	SCALE	DATE CODE	INDEX	REV	
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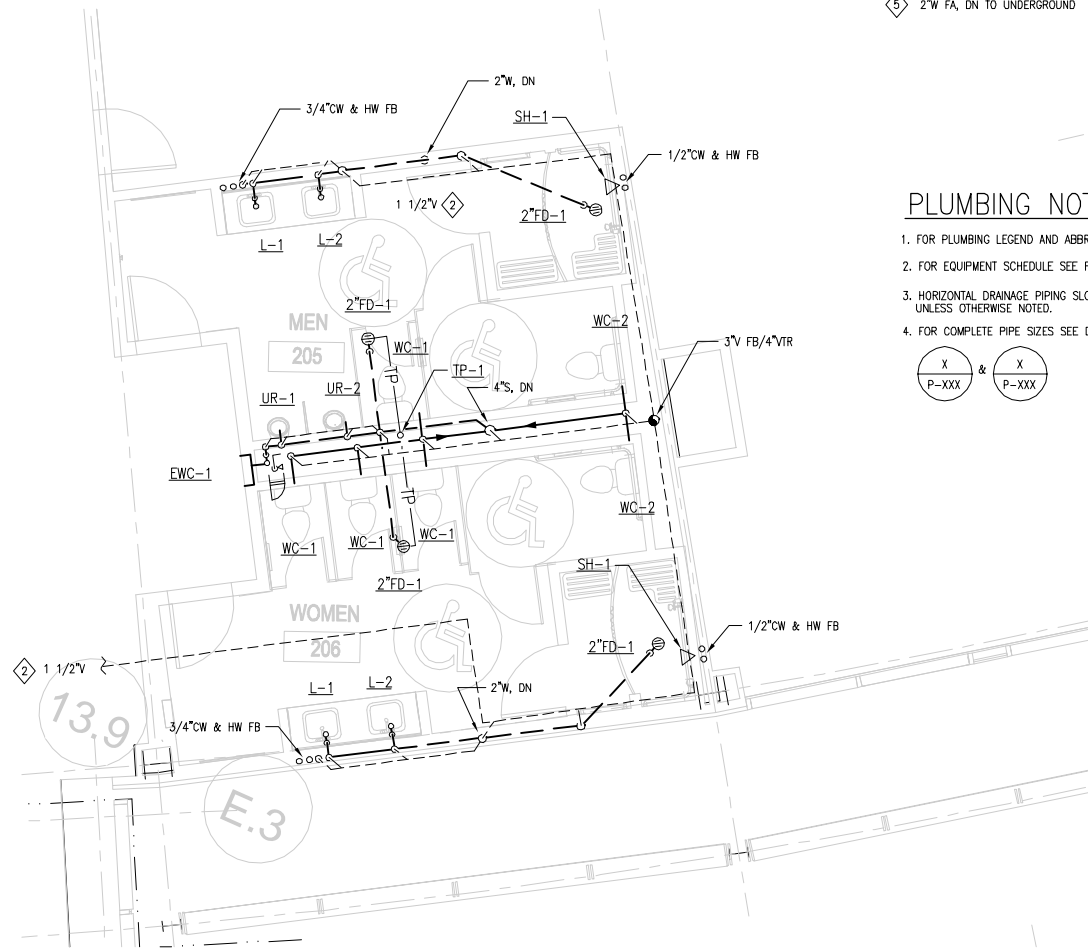
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Xrefs: \*AF001 \*XBDP-SHORT \*AF002 \*PENU001 \*PENU002



PLUMBING PARTIAL FIRST  
1 FLOOR PLAN-NORTH WING

P301 REF.

SCALE: 1/4" = 1'-0"



PLUMBING PARTIAL SECOND  
2 FLOOR PLAN-NORTH WING

P301 REF.

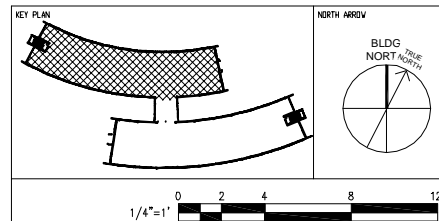
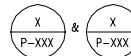
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PLUMBING KEY NOTES:

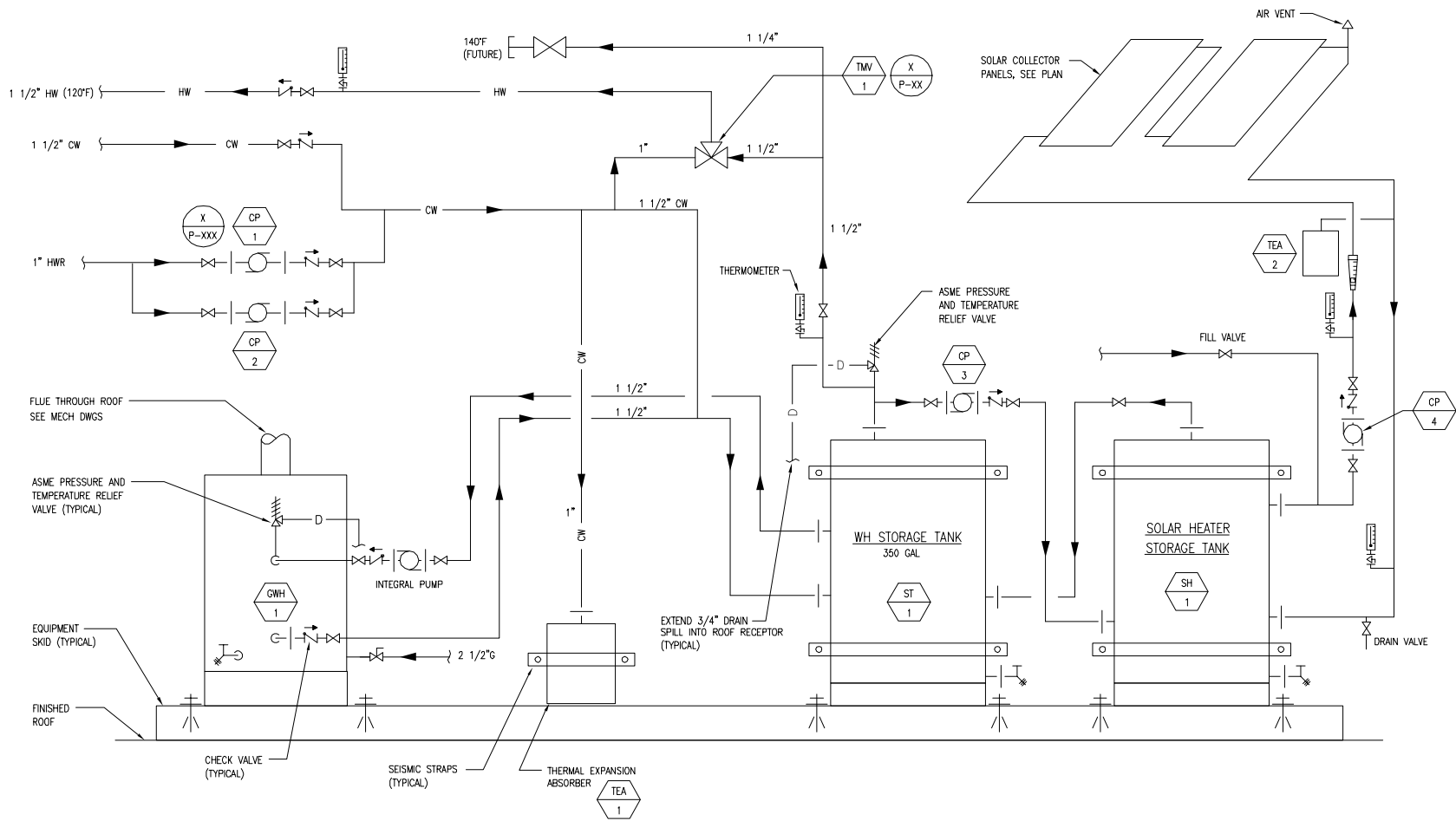
- 1 PIPING RUN BELOW FLOOR
- 2 PIPING RUN ABOVE CEILING
- 3 PIPING RUN ABOVE FLOOR
- 4 4"S FA, DN TO UNDERGROUND
- 5 2"W FA, DN TO UNDERGROUND

PLUMBING NOTES:

- FOR PLUMBING LEGEND AND ABBREVIATIONS SEE P001.
- FOR EQUIPMENT SCHEDULE SEE P-601.
- HORIZONTAL DRAINAGE PIPING SLOPE, 1/8" PER FOOT UNLESS OTHERWISE NOTED.
- FOR COMPLETE PIPE SIZES SEE DIAGRAMS

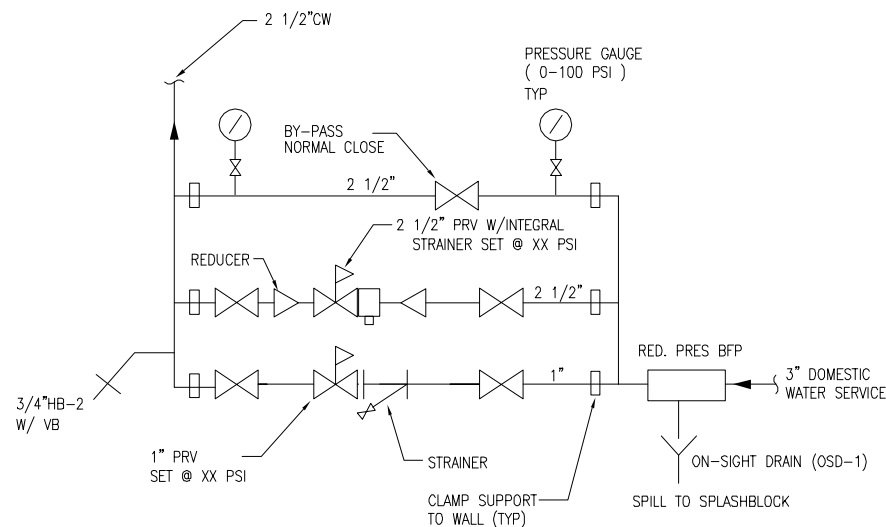


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QA/QC		
SAFETY		
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 <b>Ames Research Center</b> Moffet Field, California		
N232 COLLABORATIVE SUPPORT FACILITY PLUMBING ENLARGED FLOOR PLANS NORTH WING		
SIZE	DATE CODE	REV
D	25307	P301 6
SCALE	INDEX	SHEET OF



1 HOT WATER HEATER DETAIL

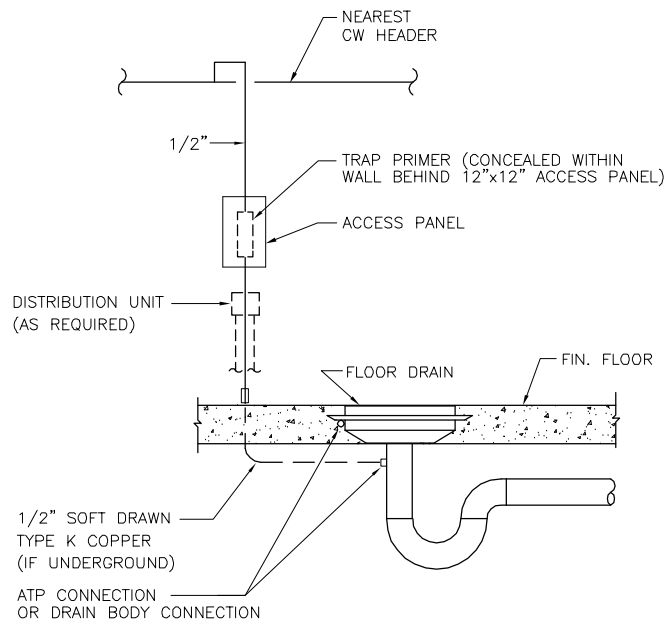
P-401 REF. SCALE: NONE



PRESSURE REDUCING VALVE SCHEDULE		
PRV SIZE	GPM	SET PRESSURE
2-1/2"	XX	XX PSI
1"	XX	XX PSI

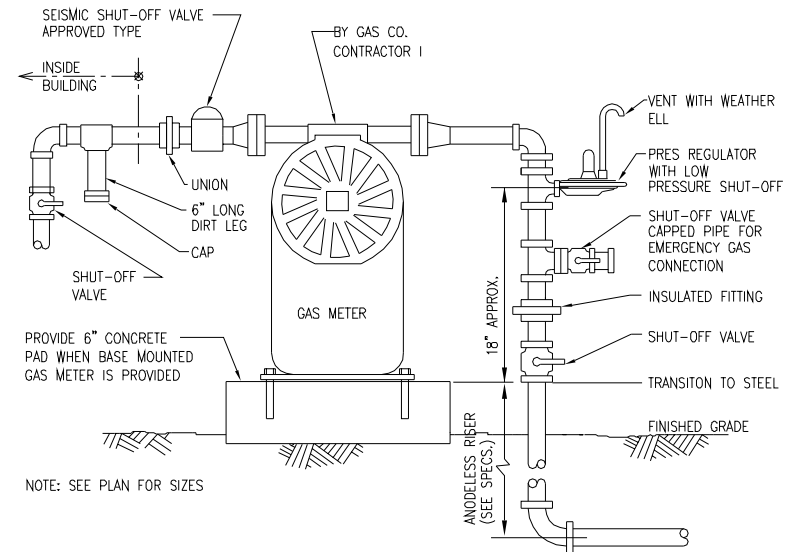
3 PRESSURE REDUCING STATION

P-401 REF. SCALE: NONE



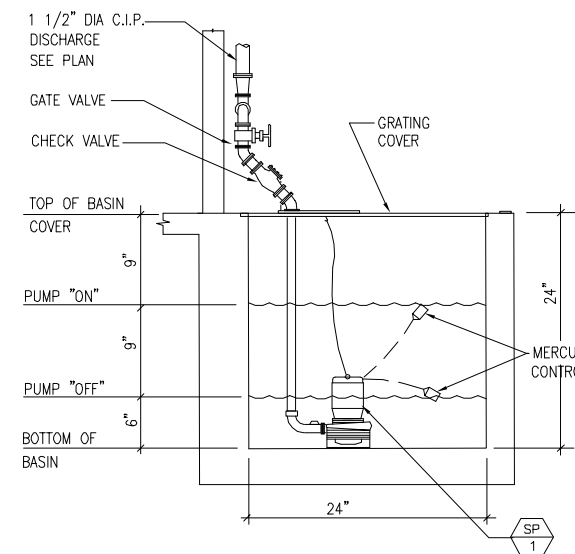
4 TRAP PRIMER DETAIL

P-401 REF. SCALE: NONE



2 GAS METER AND REGULATOR DETAIL

P-401 REF. SCALE: NONE



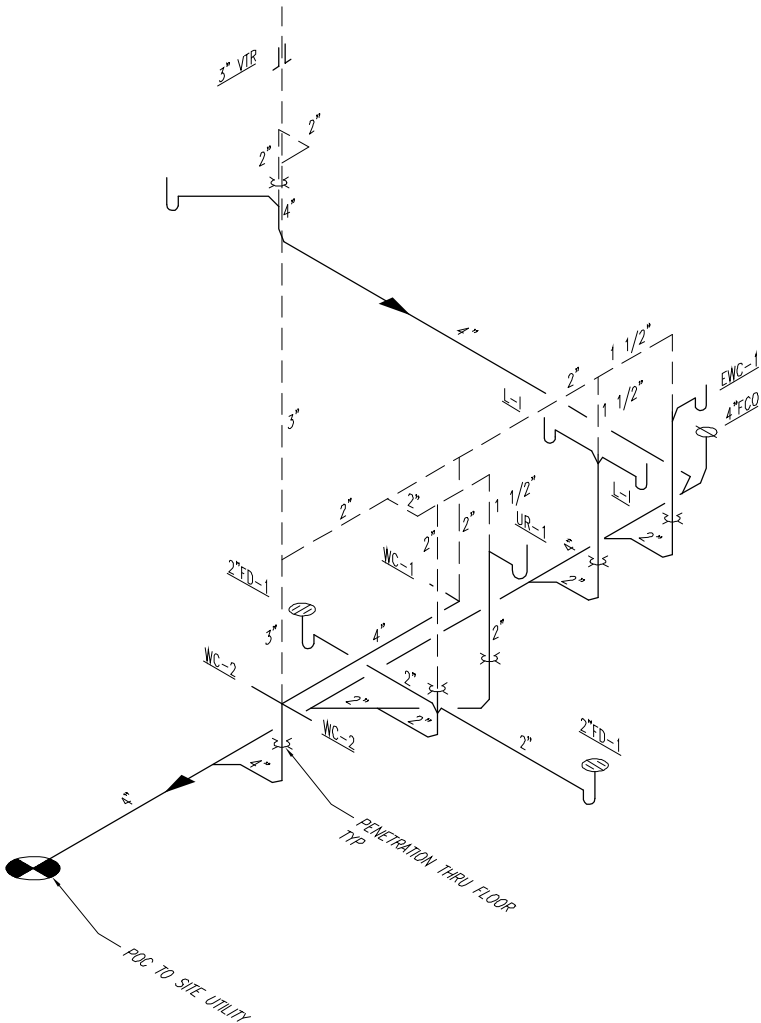
5 ELEVATOR SUMP PUMP

P-401 REF. SCALE: NONE

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SUPervisor		
<b>Ames Research Center</b> Moffett Field, California		N232 COLLABORATIVE SUPPORT FACILITY
		PLUMBING DETAILS
SIZE	DATE CODE	A232-0800-
D	25307	P-401
SCALE	INDEX	SHEET OF
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DATE: Feb 15, 2009 4:08:04 PM Image:  
Xrefs: \*XBDR-SHORT

FIXTURE UNITS CALCULATIONS							
SYMBOL	TYPE	QTY	COLD WATER		HOT WATER @ 75%	SANITARY DRAINAGE	
			FU EA.	TOTAL		FU	TOTAL
WC	PENAL -- "COMBI" -- FV	19	5	95	14.25	4	76
WC	PRIVATE -- FV	1	5	5	--	4	4
WC	PUBLIC -- FV	7	5	35	--	4	28
WC	ASSEMBLY -- FV	21	8	168	--	6	126
UR	ASSEMBLY -- FV	5	5	25	--	5	25
UR	PUBLIC -- FV	3	4	12	--	2	6
LAV	LAVATORY	34	1	34	25.5	1	34
SK	SINK	10	2	20	15.0	2	20
MS	MOP SINK	3	3	9	6.75	3	9
EWC	ELEC WATER COOLER	3	.5	15	--	1	3
SH	SHOWER	7	2	14	10.5	2	14
FS	FLOOR SINK	2	--	--	--	3	6
FD	FLOOR DRAIN	22	--	--	--	2	44
RR	ROOF RECEPTOR	4	--	--	--	4	16
TOTAL				432 FU	72 FU		411



1 PLUMBING SANITARY DRAINAGE DIAGRAM  
P-501 SCALE: NONE

WATER CALCULATIONS											
DOMESTIC CW MAIN						DOMESTIC HW AND CW BRANCH					
FIXTURE UNIT DEMAND			432 FU (132 GPM)			FIXTURE UNIT DEMAND			432 FU (132 GPM)		
TOTAL MAXIMUM WATER DEMAND: 132 GPM + 15 GPM (FOR HB'S & MECH. EQPT.) 147 GPM						TOTAL MAXIMUM WATER DEMAND: 132 GPM + 15 GPM (FOR HB'S & MECH. EQPT.) 147 GPM					
MAIN PRESSURE: 81 PSI MAX - 71 PSI MIN						SYSTEM DESIGN MIN. PRESSURE (SET @ PRV) 70 PSI					
HEIGHT OF GOVERNING FIXTURE (INC. PIPE RISER)			42 FT			HEIGHT OF GOVERNING FIXTURE			40 FT		
PRESSURE LOSSES:						SYSTEM DESIGN-PRESSURE LOSSES:					
STATIC (42 X 0.43)			18 PSI			STATIC (40 X 0.43)			17.2 PSI		
2 1/2" PRESSURE REGULATOR			7 PSI			3" PRESSURE REGULATOR			N.A.		
2 1/2" RED. PRES. BACKFLOW PREVENTER			5 PSI			BACKFLOW PREVENTER			N.A.		
2 1/2" METER			11 PSI			2 1/2" WATER METER (BY CIVIL)			N.A.		
FIRE WATER MAIN			0			FIRE WATER MAIN			0		
RESIDUAL PRES. @ GOVERNING FIXT.			25 PSI			RESIDUAL PRES. @ GOVERNING FIXT.			25 PSI		
			TOTAL = 66 PSI						TOTAL = 42.2 PSI		
PRESSURE AVAILABLE FOR FRICTION: 71 - 66 = 5 PSI						SYSTEM DESIGN-PRESSURE AVAILABLE FOR FRICTION LOSS: 70 - 42.2 = 27.8 PSI					
DEVELOPED LENGTH FROM MAIN WATER SUPPLY(STREET) TO GOVERNING FIXTURE = 600						DEVELOPED LENGTH TO GOVERNING FIXTURE:					
600 FT (LENGTH) X 1.3 (FITTINGS) =			780 FT			445 FT (LENGTH) X 1.3 (FITTINGS) =			578.5 FT		
FRICTION LOSS PER 100 FT: 100 X 5/780 = 0.6 PSI/100 FT						ALLOWABLE FRICTION LOSS PER 100 FT: 100 X 27.8/578.5 = 4.8 PSI/100 FT					
MATERIAL: COPPER L/K						MATERIAL: COPPER L/K					
SIZE OF MAIN = USE 4"						SIZE OF MAIN = 3"					
MAXIMUM VELOCITY = 3.5 FEET PER SECOND						MAXIMUM VELOCITY = 6 FEET PER SECOND					
PIPE SIZING CHART						PIPE SIZING CHART					
PIPE SIZE INCHES	PSI PER 100'	VEL. FPS	FLOW GPM	FIXTURE UNITS		PIPE SIZE INCHES	PSI PER 100'	VEL. FPS	FLOW GPM	FIXTURE UNITS	
				FL. TANK	FL. VALVE					FL. TANK	FL. VALVE
4	0.6	3.5	132	550	432	1/2	4.8	3.1	2.3	4	-
						3/4	4.8	4.1	6.5	8	-
						1	4.8	5.0	14	20	-
						1 1/4	4.8	5.8	24	37	-
						1 1/2	4.0	6	33	62	18
						2	3	6	58	160	69
						2 1/2	2.3	6	88	330	180
						3	1.8	6	132	550	432

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DRWN	DATE	<div><div><div><div><div><div></div></div></div><div><div><div></div></div></div></div><div>Ames Research Center</div><div>Moffet Field, California</div><div>N232 COLLABORATIVE SUPPORT FACILITY</div><div>PLUMBING</div><div>DIAGRAMS</div></div></div>									
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SAFETY	DATE										
SUPERVISOR	DATE	SIZE	CAGE CODE					P-501		REV	
		D	25307	A232-0800-						6	
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Xrefs: \*XBDR-SHORT

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	DESCRIPTION	PIPE ROUGH-IN CONN (IN)					NOTES
			S OR W	MIN TRAP ARM	V	CW	HW	
WC-1	WATER CLOSET	WALL MOUNT, FV, VITREOUS CHINA WITH 1.6 GPF/1.1 GPF SWITCHING FLUSH SYSTEM AND MOTION SENSOR	4	INT	2	1	-	
WC-2	WATER CLOSET-ADA	SAME AS WC-1 EXCEPT MOUNTED AT HEIGHT REQUIRED FOR ADA COMPLIANCE	4	INT	2	1	-	
UR-1	URINAL	WALL MOUNTED URINAL, VITREOUS CHINA, FV WITH BUILT-IN FUZZY TECHNOLOGY MOTION SENSOR TO CONTROL GPF PER USAGE	2	INT	1 1/2	3/4	-	
UR-2	URINAL-ADA	SAME AS UR-01 EXCEPT MOUNTED AT HEIGHT REQUIRED FOR ADA COMPLIANCE	2	INT	1 1/2	3/4	-	
L-1	LAVATORY	COUNTER TOP, RECTANGULAR, VITREOUS CHINA WITH MOTION SENSOR	2	1 1/2	1 1/2	1/2	1/2	
L-2	LAVATORY-ADA	COUNTER TOP, RECTANGULAR, VITREOUS CHINA WITH MOTION SENSOR	2	1 1/2	1 1/2	1/2	1/2	
EW-1	ELECTRIC WATER COOLER	DUAL HEIGHT, STAINLESS STEEL W/ REMOTE CHILLER	2	1 1/2	1 1/2	1/2	-	
MS-1	MOP SINK	FLOOR MOUNT, RECTANGULAR, TERRAZO	3	3	2	1/2	1/2	
FD-1	FLOOR DRAIN	J R SMITH #2005 FLOOR DRAIN, WITH TYPE B STRAINER, POLISHED CHROME TOP WITH TRAP PRIMER CONNECTION.						SEE PLANS
FS-1	FLOOR SINK	J R SMITH #3100 FLOOR SINK, SQUARE NICKEL BRONZE TIP, ACID RESISTANT ENAMELED C.I. BODY WITH NB RIM, & 1/2 GRATE DOME BUTTON						SEE PLANS
TP-1	TRAP PRIMER	PPP INC PRIME RITE #PR-500.	-	-	-	1/2	-	
NZ-1	OVERFLOW NOZZLE	J R SMITH #1770						SEE PLANS
RD-1	ROOF DRAIN	J R SMITH #1010 CAST-IRON BODY ROOF DRAIN WITH FLASHING CLAMP, UNDER DECK CLAMP, SUMP RECEIVER, & POLYETHYLENE DOME.						SEE PLANS
OD-1	OVERFLOW DRAIN	J R SMITH #1080 2" HIGH WATER DAM, UNDER DECK CLAMP, SUMP RECEIVER, & POLYETHYLENE DOME.						SEE PLANS
WH-1	WALL HYDRANT	WATTS #HY42.				3/4		
BFP-1	BACKFLOW PREVENTER	WATTS #919, REDUCED PRESSURE ZONE.						SEE PLANS
RR-1	ROOF RECEPTOR	J R SMITH #3960, ROOF SUMP RECEIVER, UNDER DECK CLAMP.						SEE PLANS
WHA-1	WATER HAMMER ARRESTER	WATTS SERIES 15. ALL STAINLESS STEEL WATER HAMMER ARRESTOR. PROVIDE WITH ACCESS PANEL.						SEE SCHEDULE
HB-1	HOSE BIBB - INDOOR	WATTS #SC8.				3/4		
HB-2	HOSE BIBB - OUTDOOR	ACORN MODEL 8131				3/4		WITH VACUUM BREAKER
NOTES: 1.								

GAS FIRED WATER HEATER SCHEDULE

ITEM NO.	MANUFACTURER MODEL	LOCATION	TYPE	SERVICE	REC. RATE AT 100° F. RISE (GPH)	BTU/HR INPUT	GAS CONN.	WATER CONNECTION	WEIGHT (LBS)	REMARKS
<div>GH1</div>										

SOLAR HEATER SCHEDULE

ITEM NO.	MANUFACTURER MODEL	LOCATION	TYPE	SERVICE	WATER CONNECTION	WEIGHT (LBS)	REMARKS
<div>SH1</div>							

CIRCULATING PUMP SCHEDULE

UNIT	MANUFACTURER MODEL	TYPE	INLET / OUTLET FLANGE (IN)	GPM	HEAD (FT)	MOTOR			REMARKS
						WATTS	V/PHASE/HZ	RPM	
<div>CP1&amp;2</div>	BELL & GOSSETT NBF-36	IN-LINE	1	10	20	270	115/1/60	3300	WET ROTOR, LEAD FREE BRONZE BODY, UL LISTED THERMALLY PROTECTED
<div>CP3</div>									
<div>CP4</div>									

PUMPS SCHEDULE

SYMBOL NO.	MANUFACTURERS MODEL	LOCATION	CAPACITY		MOTOR			ELECTRICAL			WORKING PRESSURE (PSI)	REMARKS
			GPM	HEAD	HP	BHP	RPM	PH	VOLT	HZ		
<div>SP1</div>	B&G PL-30	MECH ROOM	5	20 FT	1/12	-	2650	1	115	60	MAX.125	ALL BRONZE W/BUILT-IN OVERLOAD PROTECTION

THERMAL EXPANSION ABSORBER

SYMBOL NO.	MANUFACTURERS (BASIS OF DESIGN)	LOCATION	MAXIMUM TEMPERATURE (°F)	TANK VOLUME (GAL)	MAXIMUM WORKING PRESSURE (P.S.I.)	REMARKS
<div>TEA1</div>	AMTROL					
<div>TEA2</div>						

HOT WATER STORAGE TANK

ITEM NO.	MANUFACTURER MODEL	LOCATION	SERVICE	STORAGE CAPACITY (GAL.)	DIMENSIONS DIA X HEIGHT	WEIGHT LBS	REMARKS
<div>ST1</div>	LOCHINVAR XX	XX	DOMESTIC HOT WATER	XX			

TEMPERATURE MIXING VALVE

UNIT	MANUFACTURER MODEL	LOCATION	INLET	OUTLET	REMARKS
<div>TMV1</div>	SYMONS				

WATER HAMMER ARRESTERS

SYMBOL NO.	FIXTURE UNIT RATING	NIPPLE SIZE (INCHES)
WHA-A	1 - 11	3/4
WHA-B	12 - 32	1
WHA-C	33 - 60	1
WHA-D	61 - 113	1
WHA-E	114 - 154	1
WHA-F	155 - 330	1

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SUPERVISOR	DATE				
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